

We Claim:

1 1. A method of forming an optical fiber from a preform having a glass
2 core surrounded by an outer glass cladding with a coating of material between the
3 core and cladding which strongly interacts with the light in the core to affect either
4 high dispersion, absorption saturation, amplification, Faraday rotation or other
5 similar effects of the said light, said method comprising:

6 (a) providing a preform having a glass core, a substantially homogeneous
7 coating of a light interactive material over said glass core and a glass cladding over
8 said coating of said light interactive material, with said glasses having an
9 overlapping flow range and said coating material having a flow point which lies
10 below the flow range of said glasses with said flow range being in the range of about
11 600 - 1500°C; and

12 (b) heating said preform to an elevated temperature and drawing a fiber from
13 said preform at the flow temperature of said glasses, whereby a fiber is formed
14 having a substantially continuous film of light interactive material formed between
15 said core and cladding throughout the entire length of the fiber.

1 2. The method of claim 1 in which the light interactive coating
2 comprises an inorganic material.

1 3. The method of claim 1 is in which the light interactive material is an
2 inorganic material selected from the group consisting of a metal, metal alloy,
3 ceramic, ferrite, magnetic material and a semiconductor.

1 4. The method of claim 1 in which the light interactive material
2 comprises a metal or a metal alloy.

1 5. The method of claim 1 in which the light interactive material
2 comprises an AlCu alloy.

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1 \6. A method of forming an optical fiber from a preform having a glass
2 core surrounded by an outer glass cladding with a coating of semiconductor material
3 between the core and cladding which strongly interacts with the light in the core to
4 affect either high dispersion, absorption saturation, amplification, Faraday rotation
5 or other similar effects of the said light, said method comprising:

6 (a) providing a preform having a glass core, a substantially homogeneous
7 coating of a light interactive semiconductor material over said glass core and a glass
8 cladding over said coating of said light interactive semiconductor material, with said
9 glasses having an overlapping flow range and said coating material having a flow
10 point which lies below the flow range of said glasses with said flow range being in
11 the range of about 600 - 1500°C; and

12 (b) heating said preform to an elevated temperature and drawing a fiber from
13 said preform at the flow temperature of said glasses, whereby a fiber is formed
14 having a substantially continuous film of light interactive semiconductor material
15 formed between said core and cladding throughout the entire length of the fiber.

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